Battling Leptospirosis

Why in news?

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The researchers at the Yale School of Public Health (YSPH) are involved in a major genome-sequencing effort for 20 Leptospira species.

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What is Leptospirosis?

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- It is a zoonotic disease i.e spread from animals to humans, caused by bacteria of the genus Leptospira.
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- It is commonly known a rat fever and it affects both humans as well as other animals.
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- The infection is generally transmitted to humans by water that has been contaminated **by animal urine** which comes in contact with unhealed breaks in the skin, the eyes, or with the mucous membranes.
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- Leptospira interrogans spreads under conditions of stagnant water, flood water, humidity, and proximity between man and beast.
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- In most of the cases, leptospirosis only causes mild flu-like symptoms, such as headache, chills and muscle pain.
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- However, in some cases the infection is more severe and can cause life-threatening problems, including organ failure and internal bleeding.
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- Severe form of leptospirosis is known as **Weil's disease**.
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What is a genome?

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- A genome is an organism’s complete set of DNA, including all of its genes.
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- It includes the genes (the coding regions), the noncoding DNA and the genetic material of the mitochondria and chloroplasts.
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- Each genome contains all of the information needed to build and maintain that organism.
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What is the recent study about?

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- In 2016 leptospirosis cases were reported in India, even before the onset of the monsoon.
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- 2017 is facing the prospect of erratic monsoons.
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- Also there is no major improvement nationwide in waste-water and flood-water management.
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- So the leptospirosis toll is expected to be greater.
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- Therefore the study is aimed to improve the odds of controlling this disease by understanding the genetic determinants of Leptospira pathogenesis.
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What are the findings?

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- One accomplishment is the development of a pangenomic signalling database.
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- This has enabled researchers to explore the molecular mechanisms and regulatory pathways underlying Leptospira virulence.
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- The research also focuses on a “One Health” approach.
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- This approach integrates efforts to predict and control a disease at the human-animal-ecosystem interface, which is the key to defeat re-emerging zoonotic diseases such as **leptospirosis.**
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- It stresses upon identifying transmission sources, stratify disease risk and prioritise prevention in the resource-poor settings of Indian slums.
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- It also highlights the fact that across Primary Health Centres in India, rapid diagnostic tests are often used instead of serological tests due to lack of adequate trained personnel.
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- These rapid tests may not reach the optimal sensitivity until at least a week after onset of fever.
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- The sensitivity of the tests is low during the acute stage.
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- Therefore these rapid diagnostic tests should be used with caution before ruling out leptospirosis.
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Source: The Hindu

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